DOCUMENT RESUME

ED 432 785 CS 216 837

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TITLE Writing-across-the-Curriculum: Advice from Pre-Service Educators to University Educators.
PUB DATE 1999-08-00
NOTE 18p.
PUB TYPE Reports - Research (143)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Content Analysis; Higher Education; Journal Writing; *Preservice Teacher Education; Preservice Teachers; Secondary Education; *Student Attitudes; *Student Developed Materials; *Writing Across the Curriculum; *Writing Improvement; Writing Research

ABSTRACT

This paper examines students' practical knowledge to visualize and to design methods by which writing can be addressed across the curriculum. During two semesters of a teacher preparation course, Content Area Reading and Writing in Secondary Education, students discussed how Writing across the Curriculum (WAC) could be better incorporated by educators across the university campus in both traditional and non-traditional disciplines that are often not associated with writing. These secondary majors represented a wide variety of disciplines including Agriculture, Art, Business, Computer Science, English, Foreign Language, History/Geography, Home Economics, Industrial Technology, Health/Kinesiology, Mathematics, Music, Psychology/Philosophy, Science, and Theater. Even seasoned educators have difficulty incorporating writing as a pedagogical tool across the curriculum, particularly in those content areas that traditionally do not emphasize writing. In fields such as music, industrial arts, kinesiology, art, and other non-writing classes, educators often face the problem of determining how writing may be utilized. One solution to this problem may be to look to students, rather than educators, for ideas on how writing may be incorporated in a variety of disciplines. Students' comments are discussed in relation to current theoretical assumptions about the relationship between writing and thought. (Contains 22 references and a table of data.) (Author/SC)

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Writing-Across-the-Curriculum:
Advice from Pre-service Educators
to University Educators

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Note: I would like to thank Dr. Patricia Williams of Sam Houston State University for her leadership in the Writing-Across-the-Curriculum program and for her role in this research.

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Abstract

This paper examines students' *practical knowledge* to visualize and to design methods by which writing can be addressed across-the-curriculum. During two semesters of a teacher preparation course, Content *Area Reading and Writing in Secondary Education* , students discussed how Writing-across-the-Curriculum (WAC) could be better incorporated by educators across the university campus in both traditional and non-traditional disciplines that are often not associated with writing. These secondary majors represented a wide variety of disciplines including Agriculture, Art, Business, Computer Science, English, Foreign Language, History / Geography, Home Economics, Industrial Technology, Health/Kinesiology, Mathematics, Music, Psychology / Philosophy, Science, and Theater. The question, then, that frames this discussion considers the following, *Are the practical suggestions offered by students grounded and consistent with current major theoretical constructs in writing-across-the-curriculum?* The answer ensues.

Even seasoned educators have difficulty incorporating writing as a pedagogical tool across-the-curriculum, particularly in those content areas that traditionally do not emphasize writing. In fields such as music, industrial arts, kinesiology, art, and other non-writing classes, educators often face the problem of determining how writing may be utilized. One solution to this problem may be to look to students, rather than educators, for ideas on how writing may be incorporated in a variety of disciplines. Finally, students' comments will be discussed in relation to current theoretical assumptions about the relationship between writing and thought.

Writing-Across-the-Curriculum:

Advice from Pre-service Educators to University Educators

This past year at a state university located in the pine barrens of East Texas, I taught *Content Area Reading and Writing in Secondary Education* to preservice teachers who would soon enter the nation's classroom as content-area teachers. These secondary majors represented a wide variety of disciplines including Agriculture, Art, Business, Computer Science, English, Foreign Language, History, Home Economics, Industrial Technology, Health/Kinesiology, Mathematics, Music, Psychology, Philosophy, Science, and Theater. And although the students needed the required class, the university already been taking pedagogical strides in sending a strong institutional message to all students that writing-across-the-curriculum is a vehicle to learning though many professors struggled to find strategies to use in their content area.

During one facet of the course, students were asked how Writing-across-the-Curriculum (WAC) could be incorporated in their traditional (i.e., English) and non-traditional majors (i.e., Art, Business, Health/Kinesthology, Math, Music, and Sciences). Even many seasoned educators have difficulty using writing as a pedagogical tool across-the-curriculum, particularly in those content areas that traditionally do not emphasize writing.

One solution to this problem may be to look to students, rather than educators, for ideas on how writing may be incorporated in a variety of disciplines. This paper addresses how writing may be used across-the-curriculum by examining students' *practical knowledge* to visualize and design methods by which writing can be addressed in many disciplines. Finally, students' comments will be discussed in relation to current theoretical assumptions about the relationship between writing and thought. Simply stated, "What are the WAC suggestions offered by students and are the suggestions grounded and consistent with current major theoretical constructs?"

Methodology

In the Fall and Spring semesters of 1995-1996, I asked 116 students from three class sections to meet in groups by major disciplines. Twenty-four groups discussed in class for forty minutes how to incorporate writing-across-the-curriculum more effectively into their disciplines. Students were told that their input would be shared anonymously with the their major professors at the next writing-across-the-curriculum forum. The opportunity to have input into the WAC program empowered members of the class, and soon everyone in the room buzzed with activity.

After each group met and shared their comments with the class, the instructor collected, read, and placed comments in categories that were developed inductively after the data were collected. Analysis of comments did not begin with theories or hypotheses, but instead used inductive reasoning to interpret and analyze data into meaningful categories. Categories were formed by the constant comparative method (Glaser and Strauss, 1967). Using this method, coding is directly compared to previous data in the same and different categories that forms the properties to be classified. Glaser and Strauss, however, go beyond the initial stages of classifying data for the purposes of generating *grounded theory* which does not precede data but rather emerges as a consequence of the data.

Findings

For a comprehensive view of the 24 groups, it is necessary first to turn to the entries. Only entries that indicated some reference to WAC within the groups' major discipline were selected. Length of entry was not confined to any standards of reference. More comments were found in disciplines such as Health and Kinesiology (12), Mathematics (12), Business (10), Sciences (10), and Music (7), and smaller

number of students and therefore groups were found in English (5), Foreign Languages (3), Home Economics (3), Industrial Technology (3), and Psychology/Philosophy (3). It appears that groups that showed greater flexibility of comments had greater numbers of students involved which comes as no surprise.

Findings of Content Analysis

Content analysis was completed on the suggestions offered by 124 students in 24 groups. The content analysis was done for the purposes of finding out which comments appeared more frequently, regardless of the disciplines. Entries were analyzed by general reference to WAC and not by academic disciplines. The following table shows categories by common association and percentages found.

Insert Table about here

As the table shows, group comments fell into Evaluation and Assessment (27), Journals (19), Writing-to-Learn (15), Forms of Writing (16), Personal Advice (13), and Process Writing (3). A brief synopsis of the findings will be presented on each division within the major categories below.

Evaluation and Assessment: Essay Tests

The first category had comments submitted from six distinct majors with seven entries (Business, Computer Science, Math, Agriculture, History, and Psychology) to suggest that instructors should require more essay exams. Groups stated that essays "help us write down what we know," . . . "[essays are] more thought-provoking," . . . "I

retain more from writing [essays] in class," . . . "[essays] force me to write in my own words instead of the words used in the text," . . . "I try to find my own examples," . . . and "[essay exams] promote higher order thinking and diminish rote memorization." One group suggested that "study questions be given in advance to be answered in essay form on the day of the exam."

Evaluation and Assessment: Shorter Papers

Shorter papers, particularly shorter research papers, were suggested by nine content groups. Comments centered on the importance of required papers within the designated disciplines: "to explain the purpose and function of the programs [in computer science]" . . . "to write short papers on some ethical dilemma going on in business" . . . "to comprehend key ideas and concepts" . . . or . . . "to reinforce the process instead of the product [in math]." Several entries (Heath, Agriculture, and Math) favored more "short [research] papers rather than formal research papers" so that "the process is experienced more often." Two final group submissions (science and art) suggested that students need to do more research papers on popular topics since few papers are currently required within their disciplines .

Evaluation and Assessment: Choices of Paper Topics

Five groups stated that it is important that instructors give students more choices of topics when assigning research papers. Group feedback ranged from "more freedom to choose topics [in an area of interest]" to "more creativity and freedom in writing assignments, subject, and arrangement of writing." One group of history students elaborated on the need for a choice of writing assignments, "Give us a choice between keeping a journal or writing shorter papers throughout the semester." It appears all-in-all that many students appreciate choices.

Evaluation and Assessment: Evaluating Goals

Five groups in three disciplines (music, theater, and health /kinesiology) focused on the value of evaluating one's own performances. Suggestions centered on various forms of assessments in which students . . . "create goals for themselves in the beginning of the semester [for] a portfolio that would show how goals were accomplished" . . . "[write] performance evaluations after each ensemble" . . . "[write] personal analyses of the role in sports competitions" . . . "[write] critiques for directing and acting" . . . and . . . "[write] critiques after teaching lessons [to] improve our teaching." Such feedback on the role of evaluation and assessment show the different purposes that writing can hold in any discipline.

Evaluation and Assessment: Models of Papers & Grading

It appears that some groups of students appreciate more direction than others when written assignments are given. Although only two entries, comments suggested that direction could be given "in the form of examples or models" and in the form of "[written] objectives . . . before the assignment is given." Grading criterion given in advance, complete with objectives and models, appear to help many students with written assignments.

Journals and Learning Logs

Nineteen comments were submitted on the importance of journals and learning logs. Generally, comments discussed the importance of journals in the everyday classroom: "Field journals, journals in lecture classes, and writing-to-learn needed to be used in more science classes." Most of the comments discussed the importance of keeping a journal for a variety of different pedagogical reasons: "to write about the process, techniques, problems, or special effects used in completing an [art] project" . . . "to keep a journal on what students learned in class or in the [science] laboratory" . . .

"to keep an event journal associated with a particular agricultural project" . . . or . . . "to have students write down one new thing they learned [in math] each day."

Others groups discussed how journals help to develop higher-order thinking skills. Such comments suggested that journals were used . . ."to have students expound on what they feel is important by using their higher-order critical thinking skills [in science]" . . . "[to] write in journals about specific regions or areas through role-playing [in history]" . . . "to analyze responses to certain genres, authors, styles, and plays" . . . and . . . "[to] write about events (current or past) and tie them in with the subjects we are taking." Such comments reinforce the idea that journals help students to produce higher-order thinking skills in a variety of classes.

Journals also were discussed as a means for assessment. As a pedagogical tool, "learning logs would be terrific for Accounting and Finance by letting the instructor know where the trouble spots are when reteaching is necessary." As a written record of student accomplishment, "a journal can be kept and graded at the end of the semester based on improvement."

Finally, three group entries discussed the merits of using journals as an activity at the beginning of class, and four group entries suggested using journals at the end of class. As a beginning activity, groups suggested that students . . . "write something for five minutes every day using the current chapter vocabulary" . . . "write a short paragraph about something previously discussed or read" . . . and . . ."start each class with a warm-up question to see if we understand what is going on." Four groups recommended ending class with journal time for the same reasons as using journals at the beginning, "to allow the students to summarize what they learned that day" . . . or . . . "to see whether or not they truly understood the lecture."

Writing-to-Learn

Much like the use of the journal, fifteen comments were classified in writing-to-learn by the following purposes: to know, to understand, to explain, to explore, to apply, and to form analogies. Two comments, both from Kinesiology, discussed the importance of writing as a vehicle to know. One group explained, "If we wrote more, it would sink in more. Just hearing what each muscle does and how it works is hard to comprehend when just listening." Two comments explored how writing helps students to understand. "Use writing in ensemble classes to help the student understand a composition" and "to help students understand certain patterns for scales." Three comments described writing to explain, "a process . . . for units on the lathe, mill, welding, casting, woodworking in adhesives, machine operation, etc." Another student suggested instructors "[g]ive writing assignments in which a math student has to explain exactly how a problem is done to a non-math student." Two comments describe writing to explore: "In drafting, writing can be done to explore the importance of weights, types of drawing, and their uses" and in theater, writing to explore can be used "to finish plays which will increase improvisation expertise and impact good writing skills as well." Five groups expressed the need for students to use writing to apply what they know. One such example showed how many content groups viewed the importance of applying real world skills: "My first aid class can benefit from using writing. Writing about the first aid steps, emergency situations, and describing what you would do in certain situations would help in learning how to react a lot better." Finally, one student wrote on the benefits of how to form analogies: "In biomechanics, have students compare through writing the joints and movements of the body to ordinary objects like cranes or hinges."

Writing for Different Purposes

In this category, students offered a large sampling of the kinds of writing that may be used in many disciplines such as: Interviews, Reaction Papers, Opinion Papers, Comparison Papers, Reflective Papers, Narrative Papers, Dramatic Dialogue,

Advertisements, Books Reports, Unsent Letters, and Admit Slips. The Interview drew only one entry which advised, "Interview people in the field of agriculture and write a report on what we have learned." Such advice would allow students to learn about real world skills in any major career choices.

Two comments advised instructors to assign more Reaction Papers "on articles on computer science for higher-order thinking skills" . . . "on things in the news that relate to business." It was decided by the class that reactions papers can be assigned in any major discipline. Similarly, Opinion Papers, as one group shared, ". . . will promote a higher level of thinking -- analysis [and] synthesis." Only one student wrote that Comparative Papers need to be assigned "for total theater education and understanding."

Reflective Writing was discussed by art majors who wanted instructors to "[g]et students to write about the thought processes used to decide on subject matter for the next assignment. The professor may say, 'Remember your favorite book or movie? Relate those feeling and incorporate them in your next painting." Art majors also saw the importance of Narrative Writing, "[w]rite a narrative story to accompany each work of art."

Similarly, the Dramatic Dialogue was discussed by three groups in business, history, and science. One business group wrote "[g]ive scenarios and have students write out dialogues about what should be said or should occur. Dialogues and role playing can be useful particularly in statistics and management." Another group found that "[w]riting dialogues and role playing events in history would help us recreate more in-depth of what may have really taken place within the pages of history." In science, students simply stated, "Dramatic dialogue can be used to support or refute theories or ideas.

Other purposes for writing generated many practical ideas. Writing Ads was suggested in business for ". . . shar[ing] during each class," and Book Reports were

suggested for math history class and college algebra ". . . to get students interested in mathematics." Unsent Letters were suggested by two groups and defined as "a form of role-playing that asks writers to draft letter in response to material being studied" (Gere, 1985). Comments highlighted that, "Unsent letters would be a good idea in math class because we are told to make-up problem situations for our future students." Finally, Admit Slips were defined as "brief written responses often collected as tickets of 'admissions' to class. These are collected and read aloud by the teacher with no indication of the authorship of individual statements. Admit slips are frequently used in community building" (Gere, 1985). Two groups suggested further uses of admit slips "to let students express their feelings about course [science] or material being learned." Furthermore, [t]he use of admit slips would "take some pressure off an individual student for not understanding a problem [in math]."

Personal Advice

Of the thirteen comments that were placed in this category some were either on writing-enhanced classes in general or were specific criticisms. One example from an English major eluded to writing-enhanced classes, "I do well in writing-enhanced classes, partly because I become a real-life person through my writings." Another student wrote, "Now, more than ever, we are required [in health education] to write more in each class. The upper level classes require either a term paper or a series of papers. I think that is good especially for this major." Finally, another student suggested that "We would like to see History of Music become a writing-enhanced course."

Other comments were more directive. A group of music majors wrote, "We would like to see more creative writing [and] more compositions." Home Economic majors wrote, "Require less technical writing and [allow us] more reflective writing. Health and Kinesiology majors wrote, "Go for quality instead of quantity. Most of the health education courses require massive quantities of journal entries and, fewer, more in-

depth entries would be better." Foreign Language Majors suggested that, "Writing can be better incorporated in the foreign language classes by starting writing . . . from the earliest classes." Psychology/Philosophy majors emphasized that, "Understanding the material is most important, not the grade that is obtained by virtue of completion of assignments." The same group continued, "Do not penalize the already abstract thinker with trivial writing assignments. Allow the student to think abstractly and creatively." Finally, English majors warned, "Too many professors use students' examples in class which embarrasses the students." They also suggested that, "Writing in English should be a requirement. If you had to write in English grammar class, the subject matter would have more meaning because it would be individualized."

Process Writing

Several comments were related to Process Writing in which writing passes through stages of brainstorming, drafting, revising, and polishing. One science student suggested that the class "[e]ngage in brainstorming activities before beginning a new topic." Two business students wrote about the importance of the revising stage through student response groups, "For papers allow time for group revision and editing. Allow students to turn papers in for some general feedback before papers are due." Another wrote, "Have students share their writings. It helps to know how others have understood the material from various perspectives."

Conclusions

What these findings show is that students' were already cognizant of the literature and research on writing that confirms that writing is a tool for learning and reflection. Language scholars such as Vygotskty (1962), Freire (1968, 1985), Moffett (1968, 1982), Britton (1980), Emig (1971), Elbow (1973), and Berthoff (1983) hold that writing is a vehicle by which human beings explore meaning. Furthermore, students

knew that writing may be used for different purposes, i.e., writing-to-communicate explains the matter to another; whereas, writing-to-learn explains the matter to oneself (Young,1990).

Writing-to-Learn

Writing-to-learn appeared to generate many group comments; subsequently, students understood that the writing-to-learn approach has been endorsed by many who use writing as a means of exploring thinking (Applebee, 1983; McGinley & Tierney, 1989; Fulwiler & Young, 1982). The students knew from their own experiences that the conscious act of exploring a subject requires that a person understand the subject better (Odell (1980). And that writing is indeed central to the academic process in learning (Emig,1977). Students also were able to connect that the Writing-Across-the-Curriculum movement advances the notion of writing-to-learn in which writing becomes an organic function of all content areas (Fulwiler & Young, 1982). Finally, students showed much interest in journal writing as a pedagogical tool for writing-to-learn in all disciplines.

Journal Writing

The students were required to keep journals during the 16 week semester; subsequently, many discussions arose on the use of the journal. What was of particular interest is that which Britton (1982) calls expressive writing, which is defined as "writing that assumes an interest in the writer as well as in what he has to say about the world" (p. 156). One form of expressive writing is the journal, which may serve the purposes of a thought-collector based on classroom readings, discussions, and reflection. Britton (1972) explained the process by stating that people understand and learn from events by giving them shape in language. He later (1980) divided the journal into two functions: generating inner speech and examining one's thoughts and

experiences. Britton elaborated that it is important that writers write about something that they want to write about to someone who matters. Journals provided such a safe place for students to explore thoughts and experiences during the semester and to continue the practice to the next generation.

In a school setting, the students felt that journals could be used in any discipline to further understanding of material to be learned. Fulwiler (1987) defines the function and purpose of journals in a school setting in the following manner:

> When people write about something they learn it better. That, in a nutshell, is the idea behind asking students to keep journals. While some of us who assign these personal notebooks might argue about what they should be called --logs, learning logs, daybooks, dialectical notebooks, field notebooks, diaries, whatever-- we would not disagree about their purpose and value: writing helps our students learn things better and these notebooks provide a place in which to write informally yet systematically in order to seek, discover, speculate, and figure things out. (p. 9)

Although the students had agreed that no single theoretical framework has emerged from within the research on journal writing, students understood many assumptions about language and thought. Such assumptions about journals were in line with the National Council for Teachers of English Commission on Composition (cited in Fulwiler, 1987, p. 5), which stated:

> 1. When people articulate connections between new information and what they already know, they learn and understand that new information better (Bruner, 1966).
>
> 2. When people learn things, they use all of the language modes to do so -- reading, writing, speaking, and listening; each mode helps people learn in a unique way (Emig, 1977).
>
> 3. When people write about new information and ideas --in addition to reading, talking, and listening--they learn and understand better (Britton et al., 1975).
>
> 4. When people care about what they write and see connections to their own lives, they both learn and write better (Moffett,1968).

Summary

From Kinesiology majors to business majors, students believed that such assumptions, as state above, are the foundation of any successful writing assignment, not just journals. Students stressed repeatedly in their comments that the writing assignments that involved higher order thinking, problem-solving, new knowledge, and student interest will make learning more meaningful and relevant.

Furthermore, the advice of students at the end of each of the two semesters in *Content Area Reading and Writing in Secondary Education* offered another perspective on WAC for educators. First, such suggestions extended *practical knowledge* on how WAC can be incorporated in the classroom, particularly in non-traditional areas. Secondly, student comments were consistent with theory. Suggestions were grounded and concordant with current theoretical assumptions of the relationship between writing and thought. Finally, WAC has both practical and theoretical application across many disciplines as indicated through the suggestions of students.

Table 1: Entry Categories

Evaluation & Assessment	
Essay Tests	7
Shorter Research Papers	9
Choices of Paper Topics	5
Critical & Evaluative Writing	5
Models of Papers & Grading Criterion	2
	28
Journals & Learning Logs	
Use journals & learning logs in courses	12
Make time for journals at beginning of class	3
Make time for journals at end of class	4
	19
Writing-to-Learn	
To know	2
To understand	2
To explain	3
To explore	2
To apply	5

To draw analogies		1
		15
Purposes of Writing		
Interviews		1
Reaction Papers		2
Opinion Papers	1	
Comparison Papers		1
Reflective Papers		1
Narrative Papers		1
Dramatic Dialogue		3
Advertisements	1	
Books Reports		1
Unsent Letters		2
Admit Slips		2
		16
Personal Advice		13
Process Writing		
Make time for brainstorming of ideas		1
Make time for group sharing of ideas		2
		3

N = 94 group comments

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